

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently amended) An acicular silicon crystal having a ~~substantial~~-conical shape tapered to have a radius of curvature of not less than 1 nm to no more than 20 nm at its tip end and having a diameter of bottom surface of not less than 10 nm, and a height equivalent to or more than the diameter of bottom surface, wherein a surface of the acicular silicon crystal is coated with a thin carbon film and wherein the coated acicular silicon crystal is acicular in shape.

2. (Original) The acicular silicon crystal according to claim 1, wherein the diameter of bottom surface is not less than 10 nm to no more than 50000 nm, and the height is not less than 10 nm to no more than 200000 nm.

3.-4. (Canceled).

5. (Currently amended) A method for producing an acicular silicon crystal ~~wherein an indefinite large number of microscopic acicular crystals are uniformly formed on a surface of a silicon surface by plasma CVD method using a catalyst, in such a manner that they are oriented perpendicularly to the substrate~~which comprises:

sputtering catalytic metal micro particles by applying a direct-current voltage to a silicon substrate under reduced pressure with the silicon substrate, a target of anode side and a catalyst metal, a target of cathode side opposed to each other in an atmosphere of inert gas to uniformly adhere the catalytic metal micro particles on the silicon substrate;

and then generating electron discharge plasma by a microwave power during supplying a hydrocarbon-based gas and a carrier gas on the silicon substrate to form acicular silicon crystals with surfaces coated with a thin carbon film.

6. (Currently amended) The method for producing an acicular silicon crystal according to claim 5, ~~wherein in the plasma CVD method, after uniformly adhering catalytic metal particles on the surface of the silicon substrate, discharge plasma is caused to generate microwave power while supplying a hydrocarbon-based gas and a carrier gas, thereby~~

~~forming on the surface of the silicon substrate acicular crystals whose surfaces are coated with a thin carbon film~~the catalytic metal micro particles comprise Fe.

7. (Currently amended) The method for producing an acicular silicon crystal according to claim 5, wherein an n-type low resistive silicon substrate having resistivity of 0.1 to 20  $\Omega\cdot\text{cm}$  is used as the silicon substrate.

8.-10. (Canceled).